

**SHERIFFS' RETIREMENT SYSTEM
of the
STATE OF MONTANA**

**ACTUARIAL VALUATION
as of June 30, 2005**

Prepared by

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October 4, 2005

Retirement Board
Sheriffs' Retirement System
State of Montana

Dear Members of the Board:

At your request, we have completed an actuarial valuation of the Sheriff's Retirement System as of June 30, 2005. Details about the actuarial valuation are contained in the following report.

I certify that the information included in this report is complete and accurate to the best of my knowledge and belief. All calculations have been prepared in accordance with generally recognized and accepted actuarial principles and practices that are consistent with the applicable Standards of Practice adopted by the American Academy of Actuaries.

Milliman has been engaged by MPERA as an independent actuary. The undersigned is a Fellow of the Society of Actuaries, a Member of the American Academy of Actuaries, and an Enrolled Actuary, and is experienced in performing actuarial valuations for large public employee retirement systems.

Actuarial computations presented in this report are for purposes of analyzing the sufficiency of future contributions. Actuarial computations under GASB Statement No. 25 are for purposes of fulfilling financial accounting requirements. The computations in this report have been made on a basis consistent with our understanding of the Retirement Board's funding policies and GASB Statement No. 25. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, different determinations may be needed for other purposes.

Any distribution of this report must be in its entirety, including this cover letter, unless prior written consent is obtained from Milliman.

Respectfully submitted,

Mark O. Johnson, F.S.A., M.A.A.A., E.A.
Principal and Consulting Actuary

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**MONTANA SHERIFFS' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005**

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MONTANA SHERIFFS' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

ACTUARIAL CERTIFICATION

To the best of our knowledge and belief, this report is complete and accurate and contains sufficient information to fully and fairly disclose the funded condition of the Sheriffs' Retirement System as of June 30, 2005.

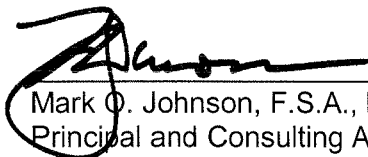
In preparing the valuation, we relied upon the financial information, membership data and benefit provisions furnished by the System. Although we did not audit this data, we compared the data for this and the prior valuation and tested for reasonableness. Based on these tests, we believe the data to be sufficiently accurate for the purposes of our calculations. It should be noted that if any data or other information is inaccurate or incomplete, our calculations may need to be revised.

The Retirement Board has sole authority to determine the actuarial assumptions and methods used for the valuation of the System. The Board adopted all of the actuarial methods and assumptions used in the 2005 valuation.

The findings have been determined according to actuarial assumptions and methods that were chosen on the basis of recent experience of the System and of current expectations concerning future economic conditions. In our opinion, the assumptions used in the actuarial valuation are appropriate for purposes of the valuation, are internally consistent, and reflect reasonable expectations. The assumptions represent our best estimate of future conditions affecting the System. Nevertheless, the emerging costs of the System will vary from those presented in this report to the extent that actual experience differs from that projected by the assumptions.

The actuarial valuation was prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the applicable Standards of Practice adopted by the Actuarial Standards Board of the American Academy of Actuaries. In addition, the assumptions and methods used meet the parameters set for disclosures by Governmental Accounting Standards Board Statement No. 25.

The undersigned is an independent actuary, a Fellow of the Society of Actuaries, a Member of the American Academy of Actuaries, an Enrolled Actuary, and experienced in performing valuations for large public employee retirement systems.



Mark O. Johnson, F.S.A., M.A.A.A., E.A.
Principal and Consulting Actuary

**MONTANA SHERIFFS' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005**

**SECTION 1
SCOPE OF THE REPORT**

This report presents the results of our actuarial valuation of the System as of June 30, 2005.

A summary of the findings resulting from this valuation is presented in Section 2 of the report and the underlying calculations are summarized in more detail in Section 3.

All of the calculations of the valuation were carried out using certain assumptions as to the future experience of the System in matters affecting the actuarial cost. Section 4 summarizes the most important of these assumptions and describes the actuarial methods used to calculate costs.

Section 5 outlines the benefit provisions of the System.

The membership data which were supplied to us are summarized in Section 6.

MONTANA SHERIFFS' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

SECTION 2
SUMMARY OF FINDINGS AND ANALYSIS OF THE FUNDING LEVEL

The costs of a retirement system are not determined by the actuary. The ultimate costs of a system are determined by adding all of the benefits and expenses that are paid, and subtracting all investment earnings. These costs cannot be determined exactly until the last member or beneficiary has received the final benefit payment due.

The purpose of an actuarial valuation is to provide a timely best estimate of the ultimate costs in order to allocate them to the appropriate generation of members and taxpayers. The ideal goal is for contributions to remain essentially a constant percentage of covered payroll as long as the assumptions and methods reflect the emerging experience of the system and its members with reasonable accuracy.

MEMBERSHIP DATA

We have developed the following comparisons between the membership in this and the prior actuarial valuations:

	<u>June 30, 2005</u>	<u>June 30, 2004</u>
Number of Members		
Retirees and Beneficiaries	340	323
Vested Terminated	42	41
Non-vested Terminated	81	73
Active	<u>680</u>	<u>662</u>
Total Membership	1,143	1,099

Detention officers who are active PERS members may elect to transfer to SRS during the period July 1, 2005 through June 30, 2006. Data on these elections was not available as of June 30, 2005. This activity will be reflected for the first time in the actuarial valuation as of June 30, 2006.

More detailed membership statistics are shown in Section 6.

DETERMINATION OF NORMAL COST

The **Normal Cost** represents the cost assigned to an average member for a given year such that it would meet the continuing costs of that particular benefit, if contributed each year starting with the date of membership. The Entry Age Actuarial Cost Method is designed to produce a Normal Cost that remains a level percentage of salaries, so it is best expressed as a rate.

The following chart shows the Normal Cost from the 2004 valuation compared to the Normal Cost in this valuation. **TABLE 1** provides more details on the Normal Cost.

MONTANA SHERIFFS' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

	<u>2005 Actuarial Valuation</u>	<u>2004 Actuarial Valuation</u>
Normal Cost Rate		
Service Retirement	14.85%	14.91%
Disability Retirement	0.78	0.78
Death	1.24	1.21
Withdrawal	<u>2.58</u>	<u>2.54</u>
Total Normal Cost Rate	19.45%	19.44%

The Normal Cost Rate is expected to remain fairly stable as long as the benefits are not amended, experience emerges as assumed, the demographic characteristics of the membership remain reasonably consistent, and the actuarial assumptions are not changed.

DETERMINATION OF THE ACTUARIAL LIABILITY

The next step in the actuarial valuation process is to project all future benefit payments from the System for current members and retirees. The level of benefits currently being paid is known, but assumptions are needed to estimate how long they will be paid, and the amount and timing of the payment of future benefits for active and inactive members who are not currently receiving payments.

The summation of the discounted values of all of the projected benefit payments for all current members, at the assumed rate of return, is called the **Actuarial Present Value of Projected Benefits**. Details are shown in **TABLE 2** and summarized below.

(\$000)	<u>2005 Actuarial Valuation</u>	<u>2004 Actuarial Valuation</u>
Actuarial Present Value of Projected Benefits		
Retired Members	\$ 79,280	\$ 73,440
Inactive Members	3,106	2,542
Active Members	<u>124,613</u>	<u>118,155</u>
Total Value of Projected Benefits	\$ 206,999	\$ 194,137

The **Actuarial Present Value of Future Normal Costs** is the value of all remaining Normal Costs expected to be received over the future working lifetime of current active members. The Actuarial Present Value of Future Normal Costs is subtracted from the Actuarial Present Value of Projected Benefits to arrive at the **Actuarial Liability**, the assets that would exist if the current Normal Cost Rate had been paid for all members since entry into the System, and if all actuarial assumptions had been realized. The following is a summary from **TABLE 2**.

MONTANA SHERIFFS' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

(\$000)	2005 Actuarial Valuation	2004 Actuarial Valuation
Actuarial Present Value of:		
Projected Benefits	\$ 206,999	\$ 194,137
Future Normal Costs	<u>47,652</u>	<u>45,529</u>
Actuarial Liability	\$ 159,347	\$ 148,608

DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS

The next step in the valuation process is to calculate the **Actuarial Value of Assets** that will be used to determine the funding status of the System. The market value of assets was reported to us as of June 30, 2005. However, because the underlying calculations in the actuarial valuation are long-term in nature, it is advantageous to smooth out short-term fluctuations in the market value of assets.

The asset smoothing method projects an Expected Value of Assets using the assumed rate of investment return, then recognizes the difference between the Expected Value and the Market Value over a four-year period. The calculation of the Actuarial Value of Assets is shown in **TABLE 3** and summarized below.

(\$000)	Gain or (Loss)	Reserve Factor	Smoothing Reserve	Value of Assets
Market Value on June 30, 2005				\$ 151,470
2002-03	\$ (1,121)	25%	\$ (280)	
2003-04	6,435	50%	3,217	
2004-05	100	75%	<u>75</u>	
Smoothing Reserve			\$ 3,012	<u>(3,012)</u>
Actuarial Value of Assets (Market Value less Smoothing Reserve)				\$ 148,458

UNFUNDED ACTUARIAL LIABILITY OR ACTUARIAL SURPLUS

The **Unfunded Actuarial Liability** is the excess of the Actuarial Liability over the Actuarial Value of Assets, which represents a liability that must be funded over time. Contributions in excess of the Normal Cost are used to amortize the Unfunded Actuarial Liability.

An **Actuarial Surplus** exists if the Actuarial Value of Assets exceeds the Actuarial Liability.

MONTANA SHERIFFS' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

The calculation of the Unfunded Actuarial Liability or Actuarial Surplus is shown in **TABLE 4** and summarized below.

(\$000)	2005 Actuarial Valuation	2004 Actuarial Valuation
Actuarial Liability	\$ 159,347	\$ 148,608
Actuarial Value of Assets	<u>148,458</u>	<u>141,022</u>
Unfunded Actuarial Liability or (Actuarial Surplus)	\$ 10,889	\$ 7,586
 Funded Ratio – Actuarial Value	 93%	 95%
 Funded Ratio – Market Value	 95%	 95%

The **Funded Ratio** is equal to the Actuarial Value of Assets divided by the Actuarial Liability. A funded Ratio of 100% means the Actuarial Value of Assets equals the Actuarial Liability, and the System could be financed by contributions equal to the Normal Cost, if all future experience emerges as assumed.

A Funded Ratio over 100% indicates the System has an Actuarial Surplus.

ACTUARIAL GAINS AND LOSSES

Comparing the Unfunded Actuarial Liability as of two valuation dates does not provide enough information to determine if there were actuarial gains or losses. The correct comparison is between the Unfunded Actuarial Liability on the valuation date and the Expected Unfunded Actuarial Liability projected from the prior valuation date using the actuarial assumptions in effect for the one-year period.

TABLE 5 shows the Actuarial Liability as of June 30, 2004, and the elements to project that figure forward to June 30, 2005: the Normal Cost, less benefits paid, plus a charge for interest at the assumed rate of 8% per year. The same table shows the Actuarial Value of Assets as of June 30, 2004, and the elements to project that figure forward to June 30, 2005: the net cash flow (contributions less benefits and expenses), plus a charge for interest at the assumed rate of 8%.

The following is a summary of the actuarial gains and losses during the one-year period.

MONTANA SHERIFFS' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

	(\$000)
Unfunded Actuarial Liability	
Actual as of June 30, 2004	\$ 7,586
Expected as of June 30, 2005	\$ 7,760
Actual as of June 30, 2005	<u>10,889</u>
Actuarial (Gain) or Loss	\$ 3,129
 (Gain) or Loss by Source	
Investment (Gain) or Loss	\$ 3,471
Liability (Gain) or Loss	<u>(342)</u>
Net from All Sources	\$ 3,129

CALCULATION OF CONTRIBUTION RATE

The statutory funding rate is tested in the valuation to determine if it is sufficient to cover the Normal Cost Rate plus an amortization payment for the Unfunded Actuarial Liability, if any, over no more than 30 years. The calculations are shown in **TABLE 6** and summarized below.

Rates as a Percentage of Active Member Payroll	2005 Actuarial Valuation	2004 Actuarial Valuation
Statutory Funding Rate	18.78%	18.78%
Normal Cost Rate	<u>19.45</u>	<u>19.44</u>
Available for Amortization	(0.67)%	(0.66)%
 UAL (Surplus) (\$000)	 \$ 10,889	 \$ 7,586
Years to Amortize	Does not Amortize	Does not Amortize
 30-Year Rate of Amortization	 2.02%	 1.49%

Based on the current Actuarial Value of Assets and all future experience emerging as assumed, the Unfunded Actuarial Liability will not be amortized over the next 30 years. We have, therefore, calculated the additional revenue needed to amortize the Unfunded Actuarial Liability over 30 years.

Calculated Contribution Rate		
Normal Cost Rate	19.45%	19.44%
Rate of Amortization	<u>2.02</u>	<u>1.49</u>
Total Contribution Rate	21.47%	20.93%
 Current Statutory Rate	 18.78%	 18.78%
Estimated Shortfall or (Surplus)	2.69%	2.15%

MONTANA SHERIFFS' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

Based on the assumptions contained in this report, the funding rate of 21.47% of payroll would be sufficient to fund the current and projected benefits from the System in accordance with GASB standards and state law.

DISCLOSURE INFORMATION - GASB No. 25

The disclosure of the Schedule of Funding Progress is calculated in accordance with Statement No. 25 of the Governmental Accounting Standards Board and is shown in **TABLES 7 AND 8**.

The Annual Required Contribution was 20.93% for the 2004-2005 fiscal year.

**MONTANA SHERIFFS' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005**

**SECTION 3
ACTUARIAL VALUATION RESULTS**

The following tables document the findings of the actuarial valuation.

TABLE 1	NORMAL COSTS
TABLE 2	SUMMARY OF ACTUARIAL REQUIREMENTS
TABLE 3	ACTUARIAL VALUE OF ASSETS
TABLE 4	UNFUNDED ACTUARIAL LIABILITY OR ACTUARIAL SURPLUS
TABLE 5	ACTUARIAL GAINS AND LOSSES
TABLE 6	CALCULATION OF CONTRIBUTION RATE
TABLE 7	SCHEDULE OF FUNDING PROGRESS
TABLE 8	SOLVENCY TEST

**MONTANA SHERIFFS' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005**

**TABLE 1
NORMAL COSTS**

	2005 Actuarial Valuation	2004 Actuarial Valuation
Normal Cost Rate		
Service Retirement	14.85%	14.91%
Disability Retirement	0.78	0.78
Death	1.24	1.21
Withdrawal	<u>2.58</u>	<u>2.54</u>
Total Normal Cost Rate	19.45%	19.44%
 Annual Normal Cost (\$000)	 \$ 5,663	 \$ 5,362
 Present Value of Future Normal Costs (\$000)	 \$ 47,652	 \$ 45,529

MONTANA SHERIFFS' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

TABLE 2
SUMMARY OF ACTUARIAL REQUIREMENTS

(\$000)	2005 Actuarial Valuation	2004 Actuarial Valuation
Retired Members		
Service Retirement	\$ 64,807	\$ 59,480
Disability Retirement	9,256	8,792
Beneficiaries	<u>5,217</u>	<u>5,168</u>
Retired Member Total	\$ 79,280	\$ 73,440
Inactive Members	\$ 3,106	\$ 2,542
Active Members		
Service Retirement	\$ 109,766	\$ 104,163
Disability Retirement	3,677	3,549
Pre-retirement Death	4,572	4,273
Withdrawal	<u>6,598</u>	<u>6,170</u>
Active Member Total	\$ 124,613	\$ 118,155
Present Value of Future Projected Benefits	\$ 206,999	\$ 194,137
Present Value of Future Normal Costs	<u>47,652</u>	<u>45,529</u>
Actuarial Liability	\$ 159,347	\$ 148,608

MONTANA SHERIFFS' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

TABLE 3
ACTUARIAL VALUE OF ASSETS

(\$000)				
Fiscal Year	Cash Flow	Expected Value	Gain or (Loss)	Market Value
2001-02				\$ 115,468
2002-03	\$ 395	\$ 125,116	\$ (1,121)	123,995
2003-04	148	134,069	6,435	140,504
2004-05	(360)	151,370	100	151,470

Fiscal Year	Gain or (Loss)	Reserve Factor	Smoothing Reserve
2002-03	\$ (1,121)	25%	\$ (280)
2003-04	6,435	50%	3,217
2004-05	100	75%	75
			\$ 3,012

Fair Market Value on June 30, 2005	\$ 151,470
Less, Asset Smoothing Reserve	(3,012)
Actuarial Value of Assets on June 30, 2005	\$ 148,458

MONTANA SHERIFFS' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

TABLE 4
UNFUNDED ACTUARIAL LIABILITY OR ACTUARIAL SURPLUS

(\$000)	2005 Actuarial Valuation	2004 Actuarial Valuation
<u>Actuarial Value</u>		
Actuarial Liability	\$ 159,347	\$ 148,608
Actuarial Value of Assets	<u>148,458</u>	<u>141,022</u>
Unfunded Actuarial Liability or (Actuarial Surplus)	\$ 10,889	\$ 7,586
Funded Ratio (AV)	93%	95%
<u>Market Value</u>		
Actuarial Liability	\$ 159,347	\$ 148,608
Market Value of Assets	<u>151,470</u>	<u>140,504</u>
Unfunded Actuarial Liability or (Actuarial Surplus)	\$ 7,877	\$ 8,104
Funded Ratio (MV)	95%	95%

**MONTANA SHERIFFS' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005**

**TABLE 5
ACTUARIAL GAINS AND LOSSES**

(\$000)	<u>Expected</u>	<u>Actual</u>	<u>(Gain) or Loss</u>
2004 Actuarial Liability	\$ 148,608		
Normal Costs	5,362		
Benefits Paid	(6,139)		
Expected Earnings at 8%	<u>11,858</u>		
Actuarial Liability	\$ 159,689	\$ 159,347	\$ (342)
 2004 Actuarial Value of Assets	 \$ 141,022		
Net Cash Flow	(360)		
Expected Earnings at 8%	<u>11,267</u>		
Actuarial Value of Assets	<u>151,929</u>	<u>148,458</u>	<u>3,471</u>
 Unfunded Actuarial Liability or (Actuarial Surplus) as of June 30, 2005	 \$ 7,760	 \$ 10,889	 \$ 3,129
 Summary Actuarial (Gain) or Loss by Source			
Investment (Gain) or Loss			\$ 3,471
Liability (Gain) or Loss			<u>(342)</u>
Total Actuarial (Gain) or Loss			\$ 3,129

MONTANA SHERIFFS' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

TABLE 6
CALCULATION OF CONTRIBUTION RATE

	<u>2005 Actuarial Valuation</u>	<u>2004 Actuarial Valuation</u>
Statutory Funding Rate		
Members	9.245%	9.245%
Employers	<u>9.535</u>	<u>9.535</u>
	18.780%	18.780%
Normal Cost Rate	<u>19.45</u>	<u>19.44</u>
Funding Rate Available for Amortization	(0.67)%	(0.66)%
 Unfunded Actuarial Liability (Surplus) (\$000)	 \$ 10,889	 \$ 7,586
Years to Amortize	30.0	30.0
Rate of Amortization Contribution or (Credit)	2.02%	1.49%
 Calculated Contribution Rate		
Normal Cost Rate	19.45%	19.44%
Amortization Payment	<u>2.02%</u>	<u>1.49%</u>
Total Calculated Rate	21.47%	20.93%
Shortfall or (Surplus) in Statutory Funding Rate	2.69%	2.15%

MONTANA SHERIFFS' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

DISCLOSURE INFORMATION - GASB No. 25

TABLE 7
SCHEDULE OF FUNDING PROGRESS
(DOLLARS IN THOUSANDS)

Actuarial Valuation Date	Actuarial Value of Assets	Actuarial Accrued Liability (AAL)	Funded Ratio	Unfunded AAL (UAAL)	Covered Payroll	UAAL as a Percentage of Covered Payroll
June 30, 1996	68,646	52,751	130	(15,895)	17,890	(89)
June 30, 1998	92,160	81,077	114	(11,083)	20,127	(55)
June 30, 2000	126,338	87,836	144	(38,502)	21,559	(179)
June 30, 2002	138,590	121,625	114	(16,965)	24,521	(69)
June 30, 2004	141,022	148,608	95	7,586	27,373	28
June 30, 2005	148,458	159,347	93	10,889	28,423	38

TABLE 8
SOLVENCY TEST
(DOLLARS IN THOUSANDS)

	(1)	(2)	(3)		Coverage Ratios		
Actuarial Valuation Date	Active Member Accounts	Inactive Actuarial Liability	Employer Financed Active Liability	Actuarial Value of Assets	(1)	(2)	(3)
June 30, 1996	9,449	14,848	28,454	68,646	100	100	156
June 30, 1998	11,686	23,521	45,860	92,160	100	100	124
June 30, 2000	17,261 ⁽¹⁾	37,124	33,451	126,338	100	100	215
June 30, 2002	20,108	55,458	46,059	138,590	100	100	137
June 30, 2004	21,643	75,982	50,983	141,022	100	100	85
June 30, 2005	22,810	82,386	54,151	148,458	100	100	80

Note:

- (1) Prior to 2000, "active member accounts" included Regular Contributions without interest for active and inactive members. Beginning in 2000, "active member accounts" includes Regular and Additional Contributions with interest, and excludes all accounts of inactive members.

MONTANA SHERIFFS' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

SECTION 4
ACTUARIAL METHODS AND ASSUMPTIONS

This section of the report describes the actuarial methods and assumptions used in this valuation. These methods and assumptions have been chosen by the Retirement Board based on our recommendations. The Retirement Board has the sole authority to select the methods and assumptions used in this actuarial valuation. The recommendations were formed on the basis of recent experience of the System and on current expectations as to future economic conditions.

The assumptions are intended to estimate the future experience of the System and the members of the System in areas which affect the projected benefit flow and anticipated investment earnings. Any variations in future experience from that expected from these assumptions will result in corresponding changes in the estimated costs of the System's benefits.

In our opinion, the current actuarial methods and assumptions are reasonable and appropriate for this System. The assumptions were developed in accordance with generally recognized and accepted actuarial principles and practices that are consistent with applicable Standards of Practice adopted by the American Academy of Actuaries.

RECORDS AND DATA

The data used in the valuation consist of financial information and records of age, service and income of contributing members, former contributing members and their survivors. All of the data were supplied by the System and are accepted for valuation purposes without audit.

ACTUARIAL COST METHOD

A fundamental principle in financing the liabilities of a retirement program is that the cost of its benefits should be related to when they are earned, rather than when they are paid. There are a number of methods in use for making a determination.

The funding method used in this valuation is the Entry Age Cost Method. Under this method the actuarial present value of projected benefits for each individual member included in the valuation is allocated on a level basis over the earnings of the individual between entry age and assumed exit ages. The portion of this actuarial present value allocated to a valuation year is called the Normal Cost. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future Normal Costs is called the Actuarial Liability.

The excess of the Actuarial Liability over the Actuarial Value of Assets is called the Unfunded Actuarial Liability. If the Actuarial Value of Assets exceeds the Actuarial Liability, the difference is called the Actuarial Surplus.

MONTANA SHERIFFS' RETIREMENT SYSTEM
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ASSET VALUATION METHOD

Asset values were supplied by the System and were accepted without audit by us. The Actuarial Value of Assets is the market value, adjusted by a four-year recognition of gains and losses.

INVESTMENT RETURN

The future investment earnings of the assets of the plan are assumed to accrue at a net annual rate of 8.00%, net of all administrative and investment-related expenses.

INTEREST ON MEMBER CONTRIBUTIONS

Interest on member contributions is assumed to accrue at a net annual rate of 5.00%.

FUTURE SALARIES

Estimates of future salaries are based on two types of assumptions. Rates of increase in the general wage level of the membership are directly related to inflation, while individual salary changes due to promotion and longevity, referred to as the merit scale, occur even in the absence of inflation. The assumed increase in future salaries due to general wage growth is 4.25% per year. The merit scale, assumed in addition to general wage growth, is shown below.

<u>Service</u>	<u>Merit Scale</u>
1	7.3%
2	5.6
3	4.4
4	3.5
5	2.8
6	2.2
7	1.7
8	1.3
9	1.0
10	0.7
11-15	0.4
16-20	0.2
After 20	0.0

MORTALITY

The probabilities of mortality are based on the following published tables. We further assume that 70% of all deaths from active membership status are duty-related.

Healthy Retirees and Non-Retired Members

Males	1994 Male Uninsured Pensioner Table (-1)
Females	1994 Female Uninsured Pensioner Table

Disabled Retirees

Males	1994 Male Uninsured Pensioner Table (+3)
Females	1994 Female Uninsured Pensioner Table (+2)

Beneficiaries

Males	1994 Male Uninsured Pensioner Table (-1)
Females	1994 Female Uninsured Pensioner Table (-1)

MONTANA SHERIFFS' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

Sample mortality rates are shown below:

Age	Healthy Members		Beneficiaries		Disabled Retirees	
	Male	Female	Male	Female	Male	Female
50	0.250%	0.154%	0.250%	0.141%	0.385%	0.186%
55	0.428	0.247	0.428	0.224	0.677	0.314
60	0.762	0.477	0.762	0.415	1.234	0.627
65	1.391	0.929	1.391	0.819	2.135	1.157
70	2.336	1.476	2.336	1.367	3.355	1.775
75	3.661	2.439	3.661	2.192	5.399	3.050
80	6.007	4.236	6.007	3.802	8.872	5.285
85	9.636	7.284	9.636	6.557	13.654	9.035
90	14.995	12.502	14.995	11.247	21.333	15.266
95	23.194	20.023	23.194	18.352	30.675	23.619

SERVICE RETIREMENT

The assumed rates of retirement used in this valuation are shown below.

Age	w/ 20 Yrs	Age	w/ 20 Yrs
Under 50	12%	60	40%
50 - 54	20	61	40
55	35	62	40
56	15	63	40
57	15	64	40
58	20	65 & over	100%
59	40		

All vested terminated members are assumed to retire when first eligible for an unreduced benefit.

MONTANA SHERIFFS' RETIREMENT SYSTEM
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DISABLEMENT

The assumed rates of disablement are illustrated below at specified ages. We further assume that 10% of all disabilities are duty-related. We also assume that all disabilities are permanent, and no disabled member will recover and return to work.

<u>Age</u>	<u>Male</u>	<u>Female</u>
22	-	-
27	0.10%	0.10%
32	0.10	0.10
37	0.10	0.10
42	0.40	0.40
47	0.40	0.40
52	0.40	0.40
57	0.40	0.40
62	0.00	0.00

OTHER TERMINATIONS OF MEMBERSHIP

The assumed rates of termination, other than for retirement, death, or disability, are shown in the following table.

<u>Service</u>	<u>All Members</u>
0	15%
1	13
2	9
3	6
4	6
5-9	5
10-14	3
15 & over	1

MONTANA SHERIFFS' RETIREMENT SYSTEM
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The probability of a terminating member electing a refund of the member account balance is shown in the following table.

Age at Termination	Non-Vested	Vested
Under 35	100%	70%
35 - 39	100	60
40 - 44	100	40
45 - 49	100	40
50 & over	100	-

PROBABILITY OF MARRIAGE

100% of all non-retired members are assumed to be married. Male spouses are assumed to be four years older than female spouses.

Changes in Actuarial Assumptions Made for this Valuation

The following method and assumptions were revised since the last valuation:

Actuarial Methods

- ◆ None

Economic Assumptions

- ◆ None

Demographic Assumptions

- ◆ None

MONTANA SHERIFFS' RETIREMENT SYSTEM
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SECTION 5
SUMMARY OF BENEFIT PROVISIONS

All of the calculations contained in this report are based on our understanding of the benefit and eligibility provisions of the system. The provisions used in this valuation are summarized below for reference purposes.

Service Retirement	Eligibility:	20 years of membership service regardless of age.
	Benefit:	Years of service credit, multiplied by highest average compensation, multiplied by 2.50%.
	Normal Form:	Monthly benefit for the life of the member, with a death benefit equal to the remaining balance of the member's contribution account.
Early Retirement	Eligibility:	5 years of membership service and attainment of age 50.
	Benefit:	Actuarial equivalent of the accrued benefit based on retirement at the earlier of completing 20 years of service credit, or age 60.
Disability Retirement	Eligibility:	Service disablement
	Benefit:	Minimum of 50% of highest average compensation. If more than 20 years of service credit, years of service credit, multiplied by highest average compensation, multiplied by 2.50%.
	Eligibility:	Non-service disablement
	Benefit:	Actuarial equivalent of accrued benefit based on a retirement age after completing 20 years of membership service or age 60.
Death before Retirement	Eligibility:	Service death
	Benefit:	50% of highest average compensation.
	Eligibility:	Non-service death
	Benefit:	Actuarial equivalent of accrued benefit based on a retirement age of 65 or completing 20 years of membership service.

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Termination Benefit	Eligibility:	Prior to 5 years of membership service
	Benefit:	Return of member contributions with interest.
	Eligibility:	5 years of membership service
	Benefit:	Either (a) or (b) below: (a) Return of member contributions with interest, or (b) Actuarial equivalent of the accrued benefit based on 20 years of membership service or a retirement age 60; commencing no sooner than the first day of the month following the member's 50 th birthday.
Benefit Adjustments	Eligibility:	Retired members and beneficiaries
	Benefit:	An annual adjustment (GABA) of 3.0% commencing January 1 st , one year after retirement
Contributions	Members:	9.245% of members' compensation.
	Employers:	9.535% of members' compensation.

MONTANA SHERIFFS' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2005

SECTION 6
SUMMARY OF MEMBERSHIP DATA

The following tables depict the participant data that was used in the valuation. Table 9 is a history of participant characteristics for the System. Table 10 displays the distribution of Active Members by age and service showing average annual salaries. Table 11 is a distribution of retirees by age, showing average monthly benefits. Table 12 summarizes Vested Inactive Members by age.

TABLE 9
MEMBERSHIP HISTORY

	<u>2005</u>	<u>2004</u>	<u>2002</u>	<u>2000</u>	<u>1998</u>	<u>1996</u>
Active Members						
Number	680	662	642	611	611	582
Average Age	41.3	41.0	40.7	40.2	41.0	-
Average Service	8.8	8.8	8.9	9.1	9.6	-
Average Salary	\$41,658	\$40,408	\$38,111	\$34,610	\$32,941	\$30,797
Inactive Members						
Service Retirement	242	228	199	167	136	107
Disability Retirement	46	45	40	38	25	22
Survivors	52	50	41	37	14	13
Vested Deferred	42	41	34	23	20	22
Non-vested Terminated	<u>81</u>	<u>73</u>	<u>153</u>	<u>150</u>	<u>134</u>	<u>109</u>
Total Inactive Members	463	437	467	415	329	273
Total Membership	1,143	1,099	1,109	1,026	940	855

Notes:

- (1) Beginning in 2000, service retirements exclude members who originally retired on a disability, and beneficiaries of members who died after retirement.
- (2) Beginning in 2000, disability retirements include all members who originally retired on a disability, regardless of their current age.
- (3) Beginning in 2000, survivors include beneficiaries of members who died after retirement, as well as beneficiaries of members who died prior to retirement.

MONTANA SHERIFFS' RETIREMENT SYSTEM
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TABLE 10
DISTRIBUTION OF ACTIVE MEMBERS

Age	Years of Service							
	Under 5		5 to 9		10 to 14		15 to 19	
	Number	Average Salary	Number	Average Salary	Number	Average Salary	Number	Average Salary
Under 25	12	31,000	-	-	-	-	-	-
25-29	54	37,341	10	41,257	-	-	-	-
30-34	65	37,011	44	44,371	5	43,979	-	-
35-39	60	36,771	43	42,682	18	44,728	5	44,253
40-44	39	35,289	23	41,177	25	44,054	17	46,896
45-49	21	37,185	19	43,498	20	46,563	14	47,405
50-54	19	36,278	12	47,964	13	49,142	14	49,053
55-59	8	33,988	8	40,715	13	41,160	12	43,146
60-64	8	38,398	-	-	1	37,824	3	42,910
65-69	1	2,825	-	-	-	-	1	39,651
70 & over	-	-	-	-	-	-	-	-
Totals	287	36,337	159	43,239	95	44,940	66	46,288

Age	Years of Service							
	20 to 24		25 to 29		30 & Up		All Years	
	Number	Average Salary	Number	Average Salary	Number	Average Salary	Number	Average Salary
Under 25	-	-	-	-	-	-	12	31,000
25-29	-	-	-	-	-	-	64	37,953
30-34	-	-	-	-	-	-	114	40,157
35-39	1	42,868	-	-	-	-	127	40,243
40-44	9	45,777	-	-	-	-	113	41,008
45-49	11	46,436	5	52,426	-	-	90	44,169
50-54	5	50,113	16	54,187	2	60,658	81	47,275
55-59	9	50,620	4	54,716	3	48,506	57	43,341
60-64	5	53,560	1	48,128	1	62,779	19	44,865
66-69	-	-	-	-	1	34,209	3	25,562
70 & over	-	-	-	-	-	-	-	-
Totals	40	48,490	26	53,697	7	51,974	680	41,658

MONTANA SHERIFFS' RETIREMENT SYSTEM
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TABLE 11
DISTRIBUTION OF RETIRED MEMBERS

Age	Service Retirees		Disabled Retirees		Survivors	
	Number	Average Monthly Benefit	Number	Average Monthly Benefit	Number	Average Monthly Benefit
Under 40	-	-	1	1,842	3	546
40-44	3	1,770	2	1,751	-	-
45-49	22	1,991	8	1,160	3	1,091
50-54	46	1,724	12	1,332	2	628
55-59	56	1,767	11	1,299	10	601
60-64	39	1,693	3	881	5	832
65-69	33	1,437	1	930	7	730
70-74	18	1,048	4	927	4	1,155
75-79	10	795	2	723	11	623
80-84	9	991	2	705	4	823
85-89	2	957	-	-	2	577
90-94	4	548	-	-	1	621
95-99	-	-	-	-	-	-
100 & over	-	-	-	-	-	-
TOTALS	242	1,573	46	1,196	52	731

TABLE 12
DISTRIBUTION OF VESTED INACTIVE MEMBERS

Age	Number
Under 30	-
30-34	2
35-39	13
40-44	8
45-49	9
50-54	7
55-59	2
60-64	-
65-70	1
70 & over	-
Total	42